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NYS NEXT GENERATION MATHEMATICS LEARNING STANDARDS

3.NBT.4.a Understand that the digits of a four-digit number represent amounts of thousands, hundreds, tens, and ones.

3.NBT.4.b Read and write four-digit numbers using base-ten numerals, number names, and expanded form.

Introduction

The lesson reviews place value for four-digit whole numbers. Read or have a volunteer read through the lesson and discuss the examples with the class. Review the values of each place and show students how the value of a digit changes as it moves one place to the left. Discuss the different ways to write whole numbers. Allow students to work with place-value blocks if they are available.

Guided Practice

The guided practice page provides sample multiple-choice and constructed answer problems for the students to complete on their own. Each item is accompanied by a hint or reminder that guides the student's thinking about how to solve the problem. Offer assistance as needed. When students have completed the items, review the answers and solution processes as a class.

LESSON 1
Place Value
3.NBT.4.a, b

Numbers have digits. The value of each digit depends on its place in that number. This is called its **place value**.

Thousands	Hundreds	Tens	Ones
7	6	5	4

This place-value chart shows the number 7,654, or seven thousand, six hundred fifty-four.

The 7 is in the thousands place. Its value is 7,000. The 6 is in the hundreds place. Its value is 600. The 5 is in the tens place. Its value is 50. The 4 is in the ones place. Its value is 4.

To read and write **whole numbers**, you can use different forms.

Standard form: 1,287

Word form: one thousand, two hundred eighty-seven

Expanded form: $1,000 + 200 + 80 + 7$

Model:

Whole numbers are used to count.

The place with the greatest value is always on the left.

The value of each place is 10 times the value of the place to the right.

1 ten = 10 ones
1 hundred = 10 tens
1 thousand = 10 hundreds

A number written in words has commas in the same places as the number written in standard form.

2,100
two thousand, one hundred

To write a number in expanded form, think of it as the sum of its places.

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GUIDED PRACTICE

Read and solve each problem.

- In which number does the digit 7 have a value of 700?
 - A 1,870
 - B 7,912
 - C 4,327
 - D 2,798

Which place is the hundreds place? Look for a number with a 7 in that place.
- A flight from New York City to Paris, France, travels about 3,636 miles. What is this distance written in word form?
 - A three hundred thirty-six
 - B three thousand, six hundred thirty
 - C three thousand, six hundred thirty-six
 - D three thousand, three hundred sixty-six

Think about the value of each digit. Write it using words.
- The Chrysler Building in New York City is 1,046 feet high to the top. Write this height in expanded form.

Answer 1,000 + 40 + 6

If there is a 0 in a place, do not write that place in expanded form.
- Witney earned 6,935 points in a video game. What is the value of each digit in this number?

6 = 6,000

9 = 900

3 = 30

5 = 5

Think about the place value of each digit. Write that value.

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Answer Rationales

- In 4,728, the 4 is four places from the right, which is the thousands place. The value of the 4 is $4 \times 1,000$, or 4,000. Choice A is correct. **(3.NBT.4.a)**
- To write a number in expanded form, write it as the sum of its place values. This number has 8 thousands, 9 hundreds, and 3 ones. There are no tens, so that place is not included. In expanded form, 8,903 is $8,000 + 900 + 3$. Choice B is correct. **(3.NBT.4.b)**
- There are 2 thousands, 4 hundreds, 1 ten, and 4 ones. Write the words for the thousands and hundreds values. Since 1 ten and 4 ones make 14, use the word form of that number. In word form, 2,414 is two thousand, four hundred fourteen. Choice D is correct. **(3.NBT.4.b)**
- Write a digit for each given value. There is no value for the tens place, so there is a 0 in the tens place in standard form. One thousand, five hundred eight is 1,508. Choice C is correct. **(3.NBT.4.b)**
- Starting on the right, the places are ones, tens, hundreds, and thousands. Since the 5 is in the tens place of 6,256, it stands for 5 tens or 50. Choice B is correct. **(3.NBT.4.a)**
- A number with 6 hundreds and 2 ones will have a 6 digit in the hundreds place and a 2 digit in the ones place. The ones place is the first place on the right. The hundreds place is the third place from the right. The only number with 6 hundreds and 2 ones is 1,602. Choice B is correct. **(3.NBT.4.a)**
- The expanded form of the number shows 9 thousands, 7 tens, and 4 ones. There are no hundreds. For standard form, write the correct digit in each place: 9,074. For word form, write the word value of each place. Since there are no hundreds, do not write the hundreds: nine thousand, seventy-four. **(3.NBT.4.b)**

TEST YOURSELF
Read and solve each problem.

- What is the value of the 4 in 4,728?
 A 4,000
 B 400
 C 40
 D 4
- What is the expanded form of 8,903?
 A $800 + 900 + 3$
 B $8,000 + 900 + 3$
 C $8,000 + 90 + 3$
 D $8,000 + 900 + 30$
- The population of Lake Placid, NY, is 2,414. What is this number written in word form?
 A two four one four
 B two hundred, four fourteen
 C two thousand, four fourteen
 D two thousand, four hundred fourteen
- What is this number written in standard form and word form?
 $9,000 + 70 + 4$
 Standard form 9,074
 Word form nine thousand, seventy-four
- What is the standard form of one thousand, five hundred eight?
 A 158
 B 1,058
 C 1,508
 D 1,980
- Charles saw a list of 6,256 cities in New York State. What is the value of the 5 in 6,256?
 A 5
 B 50
 C 500
 D 5,000
- Which number has 6 hundreds and 2 ones?
 A 8,361
 B 1,602
 C 7,620
 D 6,238

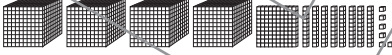
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8. In 3,297, the 2 is in the hundreds place, three places from the right. This means the 2 digit has a value of 200. **(3.NBT.4.a)**
9. There are 4 thousands blocks for 4,000. There is 1 hundreds block for 100. There are 8 tens blocks for 80. There are 6 ones blocks for 6. Combine the value of each digit to write the number in standard form: 4,186. **(3.NBT.4.a)**
10. Look at the digit in each place. There is a 6 in the thousands place for 6,000. There is an 8 in the hundreds place for 800. There is a 5 in the tens place for 50. There is a 0 in the ones place, so there are no ones. Write the number as a sum of the values of each place: $6,000 + 800 + 50$. **(3.NBT.4.b)**
11. **Part A** In 2,893, there is a 2 in the thousands place, an 8 in the hundreds place, a 9 in the tens place, and a 3 in the ones place. In 3,298, there is a 3 in the thousands place, a 2 in the hundreds place, a 9 in the tens place, and an 8 in the ones place. Both numbers have a 9 in the tens place. So in each number, the 9 has a value of 90. **(3.NBT.4.a)**

Part B To write the word forms, write the word name for the value of each digit. Insert a comma in the same place that a comma is shown in the numeral. So 2,893 is two thousand, eight hundred ninety-three, and 3,298 is three thousand, two hundred ninety-eight. **(3.NBT.4.b)**

TEST YOURSELF

8 What is the value of the 2 in 3,297?
Answer 200

9 What number do these place-value blocks show? Write the number in standard form.

Answer 4,186

10 The Manhattan Bridge in New York City is 6,850 feet long. Write this number in expanded form.
Answer $6,000 + 800 + 50$

11 Mr. Harker's class collected 2,893 pounds of food to donate to a food bank. Mrs. Santos's class collected 3,298 pounds of food to donate.
Part A Which digit in the two numbers has the same value? Explain.
Both numbers have a 9 in the tens place. So the 9 digit has a value of 90 in both numbers.

Part B Write the word forms for 2,893 and 3,298.
two thousand, eight hundred ninety-three
three thousand, two hundred ninety-eight

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CONNECTING TO MATHEMATICAL CONTENT

Grade-span connections:

- 2.NBT.1 → 3.NBT.4.a → 4.NBT.1
- 2.NBT.3 → 3.NBT.4.b → 4.NBT.2

Grade-level connections:

- 3.NBT.1 (rounding)
- 3.NBT.2 (adding and subtracting)
- 3.MD.2 (working with metric units)

CONNECTING TO MATHEMATICAL PRACTICES

- MP4:** Model with mathematics.
- MP7:** Look for and make use of structure.